

# Solar® Turbines

A Caterpillar Company

LANDFILL GAS TO ENERGY PROJECT

Powering the Global Energy Demand

## Calabasas Landfill Gas to Energy

**Owner/Operator:** Los Angeles County Sanitation District (LACSD)  
**Location:** Agoura, California



A landfill's primary purpose is to provide for the disposal of society's waste material. As it decomposes, however, this waste material produces methane, considered a greenhouse gas. To prevent the release of this gas into the atmosphere, the United States Environmental Protection Agency (EPA) has for decades required that landfills be equipped with gas collection systems to capture and destroy this gas. Traditionally, methane is destroyed by burning the collected gas in flare stations. While this method reduces greenhouse gas emissions from the landfill, the potential energy available from the methane combustion is lost.

Until recently, this was the case at the Los Angeles County Sanitation Districts' Calabasas landfill, where the amount of energy thrown away in the flares was enough to power more than 5,000 households.

In 2004, the District became aware of Solar's low emissions *Mercury*™ 50 recuperated gas turbine and approached

them with the idea of operating the turbine on landfill gas. The *Mercury 50* was developed to advance the sustainability of gas turbine technology in terms of both efficiency and emissions of nitrogen oxides and carbon monoxide. However, it had not been initially designed to operate on landfill gas. The challenge for Solar was to modify the *Mercury*'s combustion system to operate on the diluted landfill gas produced at the Calabasas landfill, while still meeting the strict emissions limits imposed by Southern California regulatory authorities.

Solar Turbines took on and successfully completed the development program and in June 2010, three *Mercury 50* gas turbines began operating at the Calabasas Landfill. The turbines deliver up to ten megawatts of electrical power to the local grid and have demonstrated exceptional emissions performance, reducing emissions of both nitrogen oxides and carbon monoxide substantially below previously established limits in Southern California.

The *Mercury 50* has enabled the Los Angeles County Sanitation District to productively utilize the low-quality gas produced at the Calabasas landfill, while meeting some of the strictest air pollution limits in the world.

In more than 14,000 installations worldwide, Solar gas turbines generate clean electrical power from natural gas with power generation packages designed to limit the impact on the environment, protect people who operate the equipment, and respect people who live nearby. Operating on the least carbon-intensive fossil fuel, our products can provide significant reductions in greenhouse gas emissions by displacing power generated from more carbon-intensive sources, while at the same time maintaining very low pollutant emissions levels.

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